ABSTRACT

A QP detection unit is to be made by using the digital circuit elements. There is provided a digital QP detector 200, which detects an electric power signal Vi, which is an input signal, and outputs a detection signal Vo, and includes a register 210 which records input digital data, a first multiplier 212 which multiplies the digital data recorded in the register 210 by a first coefficient, a second multiplier 214 which multiplies the digital data recorded in the register 210 by a second coefficient, an adder 208 which adds the electric power signal Vi and the output from the first multiplier 212 to each other, a comparator 202 which compares the level of the electric power signal Vi and the level of the detection signal Vo, and a first switch 204 which switches the digital data to be fed to the register 210 between the output from the adder 208 (Vi>Vo) and the output from the second multiplier 214 (Vi<Vo) based on a comparison result of the comparator 202, where the output of the first switch 204 is output as the detection signal Vo via a third multiplier 216 and a latch 220.